



# 2020 China's Technology Landscape

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# Overview

1. What China leads
2. What China needs

# What China Leads

1. AI (IBM)
2. Quantum Computing (D-Wave, Google, IBM, Microsoft)
3. Regenerative Medicine (Regeneron, Janssen)
4. Autonomous Driving (Google, Toyota)
5. Blockchain (Microsoft, IBM)

Source: <https://vdata.nikkei.com/en/newsgraphics/patent-wars/>

# What China Leads - Continued

6. Cybersecurity (Fire Eye)
7. Virtual Reality (Samsung, LG, Microsoft, Google, Facebook)
8. Lithium-ion batteries (Sony, LG Chem, Samsung SDI)
9. Drones (Boeing, Amazon)
10. Conductive polymers (LG Chem, Samsung SDI)

Source: <https://vdata.nikkei.com/en/newsgraphics/patent-wars/>

# “BATH” and Rankings Since 2015

Company	Total New Applications	Rankings in Patent Applications by #
Baidu	1760	2 - AI 5 - Autonomous driving 8 - Blockchain 8 - Virtual reality
Alibaba	1378	1 – Blockchain 10 - AI
Tencent	946	2 - Cybersecurity 9 - AI 9 - Blockchain
Huawei	1895	3 - Drones 5 - Virtual reality 5 - Conductive polymers 7 - Blockchain 8 - Lithium-ion batteries

Source: <https://vdata.nikkei.com/en/newsgraphics/patent-wars/>

# What we learned

1. While China leads in # of new patent applications, the U.S. undoubtedly reigns in patent quality.
2. Government support plays a critical role in China's technological development. But such support can also be abused.
3. Chinese innovations have been limited to only a handful of corporate players.
4. Chinese innovations have been more focused on applied science rather than basic science and research.

# What China Needs

1. jet engines
2. semiconductors
3. scientific instruments
4. high-end CNC machines and robotics
5. biopharma
6. hi-tech medical devices
7. ....
8. Other industries mentioned in “Made in China 2025”?

# Scientific Instruments

**TOP 20**

Most scientific instrument makers increased sales in 2018.

RANK		COMPANY	INSTRUMENT SALES 2018 (\$ MILLIONS)	% CHANGE FROM 2017	% OF TOTAL SALES	HEADQUARTERS
2018	2017					
1	1	Thermo Fisher Scientific	\$6,333	12.1%	26.0%	US
2	3	Shimadzu <sup>a</sup>	2,183	5.2	61.8	Japan
3	4	Roche Diagnostics <sup>b</sup>	2,064	5.2	15.6	Switzerland
4	5	Agilent Technologies <sup>c</sup>	2,015	3.8	41.0	US
5	2	Danaher	1,941	-15.0	9.8	US
6	6	Zeiss Group <sup>d</sup>	1,831	0.7	26.6	Germany
7	8	Bruker	1,516	14.4	80.0	US
8	7	Mettler-Toledo International	1,497	9.8	51.0	Switzerland
9	9	Waters Corp.	1,205	2.1	49.8	US
10	12	PerkinElmer	889	27.0	32.0	US
11	11	Bio-Rad Laboratories <sup>e</sup>	871	14.0	38.6	US
12	10	Eppendorf <sup>e</sup>	857	5.1	100.0	Germany
13	14	Spectris	723	16.4	33.7	England
14	13	JEOL <sup>a</sup>	648	-1.1	65.0	Japan
15	15	Hitachi High-Technologies <sup>a</sup>	613	1.3	9.0	Japan
16	17	Nikon <sup>a</sup>	571	10.5	8.8	Japan
17	16	Illumina	569	10.5	17.1	US
18	18	Sartorius	500	7.4	27.0	Germany
19	19	Olympus <sup>a</sup>	357	3.1	5.1	Japan
20	20	Tecan <sup>e</sup>	341	6.4	58.0	Switzerland

Source: <https://new.qq.com/omn/20200831/20200831A0480Z00.html>



# Takeaways

1. Companies from the U.S., EU, Japan and South Korea still occupy top places in innovation and commercialization.
2. As policy and legal reforms progress, China is slowly but surely closing on its goals, i.e., moving its manufacturing base higher up the value chain and become a major manufacturing power.



Questions?  
问题?

# THANK YOU!

## 感谢您的参与!

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